

west virginia department of environmental protection

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Jim Justice, Governor Austin Caperton, Cabinet Secretary www.dep.wv.gov

ENGINEERING EVALUATION / FACT SHEET

BACKGROUND INFORMATION

Application No.: R13-1512K Plant ID No.: 011-00045

Rust-Oleum Corporation (ROC) Applicant:

Facility Name: Lesage

Location: 7850 Ohio River Road; Lesage, Cabell County, WV 25537

NAICS Code: 325510 - Paint and Coating Manufacturing

Application Type: Modification Received Date: March 8, 2017 Engineer Assigned: John Lega Fee Amount: \$1,000.00

Date Received: March 24, 2017

Complete Date: March 20, 2017 (Affidavit of publication sent via email to DAQ)

June 20, 2017 Due Date:

Applicant Ad Date: March 17, 2017 (2nd legal advertisement; 1st was for Class II Update)

The Herald Dispatch Newspaper:

UTM's: Easting: 388.1 Northing: 4,268.4 Zone: 17 38.5573 N Longitude -82.2843 W Latitude Long/Lat:

Description: Installation of:

- 1) A new paint filling line for a new line of product (RESTORE; two variants: 4X and 10X) to be manufactured at the facility.
- 2) Dust Collector (DC-2, EDC-2) to operate in parallel with existing Dust Collector (DC-1, EDC-1) to provide supplemental capacity or act as a backup device to allow production to continue if the existing collector has to be taken off line.

Note that the new paint filling line is not connected to/ does not feed PM emissions to the new dust collector (DC-2, EDC-2) or the old dust collector (DC-1, EDC-1).

Also, corrects several administrative errors in existing permit (see Tables 1 and 2, below).

SUMMARY

This modification application (R13-1512K) will:

- 1) Correct errors in current permit R13-1512L (see Table 1 below, ID No's in the table are marked with an asterisk for corrections; and see Table 2, "Type of Change" column is marked as "Correction"), and
- 2) Allow the installation of a new 8,800 gallon storage tank (TK-310, EFUG1) considered to be a De Minimis source (per 45CSR13, section 2.6. Table 45-13B, No. 58); a new ribbon blender (RB-1, EFUG1); a new 1-3 gallon process line (S-10, EFUG1) and a new dust collection system (DC-2, EDC-2).
- 3) Allow the use of **NeoCryl A-1237 XP**, a resin used in the production of coatings, inks and/or adhesives (see section labeled **MSDS** below).

Emissions from this modification are estimated to be:

- New Paint Line (TK-310, EFUG1; RB-1, EFUG1; S-10, EFUG1):

VOC emissions: 3.7 lb/hr and 3.8 ton/yr; HAP-Glycol Ethers: 0.06 lb/hr and 0.06 ton/yr;

New Dust Collector (DC-2; EDC-2):

Controlled PM emissions: 0.96 lb/hr and 1.0 ton/yr; Controlled PM10 emissions: 0.77 lb/hr and 0.8 ton/yr;

Note: The annual emissions listed above are based on operating the Dust Collector (DC-2; EDC-2), and the process and inside storage tank (S-10

and TK-310) for 2,080 hr/yr.

ROC is not requesting an increase in the currently permitted potential-toemit VOC limit of 22.6 tpy (section 4.1.8. in permit). The operation of the new line is expected to increase actual VOCs by 3.8 ton/yr. This is expected to increase the facility's annual actual VOC emissions to approximately 7 ton/yr, based on the average of the last 2 years.

PROCESS DESCRIPTION (for New RESTORE Paint Line)

The following process description comes from Attachment G:

Raw Materials - Water-based paint raw materials for this new paint line will be delivered to the facility in bags, super sacks, drums, totes or by

bulk truck or rail.

The bulk materials will be off-loaded into storage tanks (inside and out) via loading rack pumps.

The remaining materials will be off-loaded into the facility warehouse. These constituents consist of resins, sand, other powders, pigments, additives and solvents.

Paint Batch -

Constituents are combined in a specific sequence and volume according to a specified formula dependent upon the final product desired to form a paint batch.

Initial Mixing - The process begins with mixing of latex, additives and solvents in a mixing vessel for a specified period of time to form the base mixture. The constituent materials are either pumped into the vessel or added by hand.

Ribbon Blending - Upon completion of the initial mixing, the base is pumped into a ribbon blender where sand and other powders are added and subsequently blended for another specified period of time.

Product Testing -

The product is then tested for quality while still in the blender and adjustments to bring out of spec material into quality compliance are made.

A typical batch takes anywhere from 4 to 8 hours to go from initial mixing to final product depending upon the final product to be made.

Filling/Packaging - Once the material passes all quality tests, it is subsequently pumped to the filling line and dispensed into the appropriate consumer packaging, e.g., quart, gallon pail or 5-gallon buckets.

Product/Shipment - The filled containers are then palleted and wrapped for shipment to a distribution center.

Emissions -Emissions from the new paint line are fugitive building VOCs, HAPs, and PM pollutants.

> PM -PM is emitted as the powders are added by hand to the mixing vessels and when the sand is added to the ribbon blender.

PM emissions are considered to be fugitive building emissions and are not controlled by the new or old dust collector systems.

VOC & HAPs

The VOCs and HAPs are emitted during the storing, mixing, and filling operations of the new paint line.

Engineering controls to be installed will be hard piping, submerged filling, where appropriate, and lids/covers on all tanks and vessels.

There is no air pollution control device to mitigate these type of emissions. The estimated emissions are minimal, however, due to low vapor pressure constituents and the small volume production runs.

Table 1	Table 1: Changes (in RED) to Emission Units Table 1.0 in R13-1512J.					
ID. No.	Emission Point ID	Emission Unit Description	Year Installed	Design Capacity	Control Device	
*TK-304	E-TK-304	Indoor Storage Tank		2,500 gal 5,712 gal	None	
TD-308 *TK-308	Not Assigned	Pilotec PA-05 (No Emissions/Water Based Paint Only)	2016	5,000 gal	None	
TD-309 *TK-309	Not Assigned	BASF Acronal 296D (No Emissions/Water Based Paint Only)	2016	7,500 gal	None	
New TK-310	New EFUG1	New HDPE Inside Latex Storage Tank (DeMinimis Source) (Not in permit's Emissions Unit Table 1.0)	2017 New 3/17	New 8,800 gal	New None	
New RB-1	New EDC-2	New Ribbon Blender (mixes sand & other solids into base latex)	New 2017 New 4/17	New 3,000 gallon	New DC-2 (Fabric Filter)	
New DC-2	New EDC-2	New Baghouse Control Device System Donaldson Torit Downflow Oval 3-18 Cartrige Style Filters & REMBE Non-return Valve (Shown in permit's Emissions Unit Table 1.0 as a control device for the Ribbon Blender)	New 2017 New 5/17	New 8,000 cfm	New It is the control device!	
* S-1	ST-6 EFUG1	Container Filling Machine Filling Machine Line 1		2,160 GPM 60 gpm	None	
* S-2	ST-6 EFUG1	Container Filling Machine Filling Machine Line 2		3,600 GPM 45 gpm	None	
* S-3	ST-6 EFUG1	Container Filling Machine Filling Machine Line 3		2,160 GPM 28 gpm	None	
New S-4	New EFUG1	New Filling Machine Line 4	New 2017	New 28 gpm	New None	
MS-10 * S-5	Vents Inside EFUG1	Five Gallon Filling Machine Filling Machine Line 5 (5-Gal/O)		400 GPM 20 gpm	None	
RC-1	ST-6	Container Filling Machine		900 GPM	None	

ID. No.	Emission Point ID	Emission Unit Description	Year Installed	Design Capacity	Control Device
RC-2	ST-6	Container Filling Machine		900 CPM	None
WP-1 * S-6	Vents Inside EFUG1	Container Filling Machine Filling Machine 6 (WP)		4 gpm	None
New S-7	New EFUG1	New Filling Machine 7 (5-Gal/W)	New 2016	New 20 gpm	New None
New S-8	New EFUG1	New Filling Machine 8 (Mezz)	New 2016 New 12/16	New 20/25 gpm	New None
HF-1 * S-9	Vents Inside EFUG1	Container Filling Machine (Hand) Filling Machine Line 9 (Hand-fill)		400 GPM 2gpm	None
New S-10	New EFUG1	New Filling Machine 10 (1-3 Gal)	New 2017 New 5/17	New 16 gpm	New None

The same changes shown in Table 1, above, are shown in a slightly different way, for clarity purposes in Table 2, below.

Tab	Table 2: Changes Proposed in Modification Permit R13-1512J.					
No.	Type of Change	ID No.	Column to be Changed in Emissions Unit Table 1.0	Before	After	
	Updates to Emissions Unit Table 1.0					
1.	Correction	TD-308	ID No.	TD-308	TK-308	
2.	Correction	TD-309	ID No.	TD-309	TK-309	
3.	Correction	TK-304	Design Capacity	2,500 gal	5,712 gal	
4.	Correction	S-1	Emission Point ID No.	ST-6	EFUG1	
			Emission Unit Description	Container Filling Machine	Filling Machine Line 1	
			Year Installed	blank	blank	
			Design Capacity	2,160 GPM	60 gpm	
			Control Device	None	None	
5.	Correction	S-2	Emission Point ID No.	ST-6	EFUG1	
			Emission Unit Description	Container Filling Machine	Filling Machine Line 2	
			Year Installed	blank	blank	
			Design Capacity	3,600 GPM	45 gpm	
			Control Device	None	None	

No.	Type of Change	ID No.	Column to be Changed in Emissions Unit Table 1.0	Before	After
6.	Correction	S-3	Emission Point ID No.	ST-6	EFUG1
			Emission Unit Description	Container Filling Machine	Filling Machine Line 3
			Year Installed	blank	blank
			Design Capacity	2,160 GPM	28 gpm
			Control Device	None	None
' .	Addition	Did Not	ID No.	New	S4
		Exist	Emission Point ID No.		EFUG1
			Emission Unit Description		Filling Machine Line 4
			Year Installed		2017
			Design Capacity		28 gpm
			Control Device		None
3.	Correction	MS-10	ID No.	MS-10	S-5
			Emission Point ID No.	Vents Inside	EFUG1
			Emission Unit Description	Five Gallon Filling Machine	Filling Machine Line 5 (5-Gal/O)
			Year Installed	blank	blank
			Design Capacity	400 GPM	20 gpm
			Control Device	None	None
).	Delete	RC-1	ID No.	RC-1	
	Row		Emission Point ID No.	ST-6	No Longer Exists
			Emission Unit Description	Container Filling Machine	
			Year Installed	blank	
			Design Capacity	900 GPM	
			Control Device	None	
0.	Delete	RC-2	ID No.	RC-2	
Ro	Row		Emission Point ID No.	ST-6	No Longer Exists
			Emission Unit Description	Container Filling Machine	
			Year Installed	blank	
			Design Capacity	900 GPM	
			Control Device	None	
1.	Correction	HF-1	ID No.	HF-1	S-9
			Emission Point ID No.	Vents Inside	EFUG1

No.	Type of Change	ID No.	Column to be Changed in Emissions Unit Table 1.0	Before	After
			Emission Unit Description	Container Filling Machine (Hand)	Filling Machine Line 9 (Handfill)
			Year Installed	blank	blank
			Design Capacity	400 GPM	2 gpm
			Control Device	None	None
12.	Correction	WP-1	ID No.	WP-1	S-6
			Emission Point ID No.	Vents Inside	EFUG1
			Emission Unit Description	Container Filling Machine	Filling Machine Line 6 (WP)
			Year Installed	blank	blank
			Design Capacity	blank	4 gpm
			Control Device	None	None
13. Addition	S-7	ID No.	New	S-7	
			Emission Point ID No.		EFUG1
			Emission Unit Description		Filling Machine Line 7 (5-Gal/W
			Year Installed		2016
			Design Capacity		20 gpm
			Control Device		None
4.	Addition	S-8	ID No.	New	S-8
			Emission Point ID No.		EFUG1
			Emission Unit Description]	Filling Machine Line 8 (Mezz)
			Year Installed		2016
			Design Capacity]	20/25 gpm
			Control Device]	None
15.	Addition	S-10	ID No.	New	S-10
			Emission Point ID No.	1	EFUG1
			Emission Unit Description]	Filling Machine Line 10 (1-3 Ga
			Year Installed]	2017
			Design Capacity]	16 gpm
			Control Device	1	None

No.	Type of Change	ID No.	Column to be Changed in Emissions Unit Table 1.0	Before	After
1	Addition	TK-310	ID No.		TK-310
			Emission Point ID No.	New	FUG1
			Emission Unit Description		HDPE Inside Latex Storage Tank (DeMinimis Source)
			Year Installed		2017
			Design Capacity		8,800 gallon
			Control Device		None
2	Addition	RB-1	ID No.	New	RB-1
			Emission Point ID No.		EDC-2
			Emission Unit Description		Ribbon Blender (mixes sand & other solids into base latex)
			Year Installed		2017
			Design Capacity		3,000 gallon
			Control Device		DC-2 (Fabric Filter)
3	Addition	S-10	ID No.	New	S-10
	(Also, listed		Emission Point ID No.		EFUG1
	above as an update		Emission Unit Description		Filling Machine 10 (1-3 Gal)
	to R13- 1512L.)		Year Installed		2017
			Design Capacity		16 gpm
			Control Device		None
4	Addition	DC-2	ID No.		DC-1
			Emission Point ID No.	New	EDC-2
			Emission Unit Description		Baghouse Control Device System
			Year Installed		2017
			Design Capacity		8,000 cfm
			Control Device		This is a control device!

Table 3: New Dust Collector (DC-2; EDC-2).	
Item of Interest	Answer
Manufacturer:	Donaldson Torit
Model No.	DFO 3-18

Table 3: New Dust Collector (DC-2; EDC-2).				
Item of Interest	Answer			
Total no. of compartments	9			
No. of compartments online for normal operation	9			
Baghouse Configuration	Open Pressure			
Filter Fabric Bag Material	Nanofiber			
Bag Dimension	14.4 in diameter; 2.2 ft length			
Total Cloth Area	3,420 ft2			
No. of Bags	18			
Operating Air to Cloth Ratio	2.3 ft/min			
Baghouse Operatione	Intermittent			
Gas Flow Rate into Collector	7,400 ACFM at 70 degrees F and 14.8 psia			
ACFM:	8,000			
PSIA Average Expected	14.8 PSIA			
Gas Stream Temperature	Ambient			
Fan Requirements	50 hp			
Pollutants to be Collected	PM & PM10 associated with sand and powder, and cellulosic materials.			
How is filter monitored for indications of deterioration?	Pressure Drop and Daily Visual Opacity Readings			
Collection Material Disposal System	Filter Dust Collected in 55 Gallon Drums & Disposed of via Landfilling.			
Monitoring	Daily visual opacity and recordkeeping of the operating control panel indicators, i.e., pressure drop. For opacity, any degree would be considered an issue. A pressure drop increase of > 2.5 in w.c. trigger an inspection of the baghouse for filter clogging.			
Recordkeeping	Monthly logsheets with daily records kept on file.			
Reporting	If daily monitoring of opacity or pressure drop indicate a problem, a report to maintenance for filter bag repair or maintenance will be submitted that day.			

MSDS

One, eight (8) page Material Safety Data Sheet for **NeoCryl A-1237 XP**, a resin used in the production of coatings, inks and/or adhesives, was submitted in Attachment H. No chemical formulas or chemical compounds were identified in the MSDS.

Physical & Chemical Properties

Appearance: Physical State - Liquid (Milky emulsion)

Color - Off-white

Odor: Ammonia
Odor Threshold: Not Available
pH: 8.6 to 9

Boiling Point: 100 degree C

Flash Point: Closed cup: >212 degree F (estimate) (Product does not

sustain combustion.)

Relative Density: 1.05 (Water = 1)

Density (g/cm3): 1.05 g/cm3 (20 degree C)

Solubility: Insoluble in the following materials: cold water, hot water,

methanol, n-octanol and acetone.

Viscosity: Kinematic (room temperature): 0.5 to 3 cm3/s (50 to 300

cSt)

Remarks: Miscible in water.

SITE INSPECTION

A full-on-site inspection of the facility was conducted on August 5, 2016 by DAQ's Joshua Woody. The facility was found to be in compliance and was given the status code of 30.

Directions to the facility as found in the application (12A page 2 of 4) are:

From Charleston travel west on I-64W towards Huntington. Take CR-19 exit and travel north to SR-2. Turn right on SR-2. The plant main entrance is approximately 7 miles on the left, near Green Bottoms.

ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

The writer reviewed ROC's methods for calculating emissions and believes the company's approach to be reasonable and sound. Supporting emission calculations are provided in Attachment N of the application.

The increase in PTE associated with this modification is given in Table 4 below:

	An	Annual PTE Emissions (TPY)			
Operation Generating Emissions	voc	НАР	PM	PM10	
New Paint Manufacturing	3.8	-	-	-	
New Paint - Glycol Ethers	-	0.061	-	-	
Solids Handling	-	-	1.0	0.8	

The company states that: "The facility is not proposing any change to it's currently permitted PTE limit for VOC and HAP Emissions. With the installation of the new equipment, a re-allocation of production and thus PTE emission will occur under the existing limits.

Bases for Emission Calculations

VOC and PM

From the proposed sources (tanks, lines and mixers), VOC and PM emissions are based on maximum production and standard emission factors for paint manufacturing from Emission Inventory Improvement Program (EIIP) Methods for Estimating Air Emissions from Paint, Ink and Other Coating Manufacturing Facilites, Volume II, Chapter 8, February 2005.

PM

PM emissions are based on maximum production rates and standard emission factors for solids handling in Paint Manufacturing, Table 6.4-1, AP-42, Fifth Edition, Volume I, May 1983.

VOC

VOC emissions from the storage tank are estimated using the working loss equation (1-29) from Chapter 7 - Organic Liquid Storage Tanks, AP-42, Fifth Edition, Volume 2, November 2006.

REGULATORY APPLICABILITY

ROC's Lesage Facility is a non-major, stationary source under Rule 13; is exempt from Title V permitting and is an area source for Hazardous Air Pollutants (HAPs).

The following State and Federal Rules were examined for applicability:

45 CSR 7 - "To Prevent and Control Particulate Matter Air Pollution from Manufacturing Processes and Associated Operations"

The new Dust Collector (DC-2) is subject to the emissions standards of 45CSR7.

Applicable Sections of 45CSR§7 quoted in the permit are:

- 45CSR§7-3.1 Opacity limit (> 20% opacity), quoted in permit Sections 4.1.11;
- 45CSR§7-5.1 Control system for fugitive emissions, quoted in permit Sections 4.1.12;
- 45CSR§7-8.1 PM testing of exhaust gases, quoted in permit Section 4.1.13.
- 45CSR§7-8.2 Testing by the Director, quoted in permit Section 4.1.14.
- 45CSR§7-9.1 Application to Director for malfunctions, quoted in permit Section 4.1.15.
- 45CSR13 "Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Temporary Permits, General Permits, and Procedures for Evaluation."

ROC submitted a complete application (March 20, 2017) for the installation of a new paint filling line for the new line of product RESTORE, variants: 4X AND 10X; ran a (second) legal advertisement in *The Herald Dispatch* (March 17, 2017); and paid a \$1,000 application fee (March 24, 2017) to obtain a modification permit. ROC updated the application on May 22, 2017 to clarify that the new dust collector (DC-2; EDC-2) does not capture emission from the new paint line.

45CSR34 - "Emission Standards for Hazardous Air Pollutants for Source Categories Pursuant to 40 CFR, Part 63"

This rule establishes and adopts a program of national emission standards for hazardous air pollutants (NESHAPS) and other

regulatory requirements promulgated by the United States Environmental Protection Agency pursuant to 40 CFR Parts 61, 63 and section 112 of the federal Clean Air Act, as amended (CAA). This rule codifies general procedures and criteria to implement emission standards for stationary sources that emit (or have the potential to emit) one or more of the eight substances listed as hazardous air pollutants in 40 CFR §61.01(a), or one or more of the substances listed as hazardous air pollutants in section 112(b) of the CAA. The Secretary hereby adopts these standards by reference. The Secretary also adopts associated reference methods, performance specifications and other test methods which are appended to these standards.

40 CFR 63, Subpart CCCCCC (7C)

 "National Emission Standards for Hazardous Air Pollutants for Area Sources: Paints and Allied Product Manufacturing"

Does not apply as none of the new raw materials associated with this installation contain any of the HAPs as defined in 40 CFR 63.11607.

TOXICITY OF NON-CRITERIA REGULATED POLLUTANTS

Not Applicable.

AIR QUALITY IMPACT ANALYSIS

This modification was determined to be a minor modification to an existing minor source, as defined in 45CSR14. No modeling studies were performed.

MONITORING OF OPERATIONS

4.1.8. Volatile Organic Compounds (VOC), including Hazardous Air Pollutants (HAP), emissions from working and standing losses from storage vessels, batch process vessels, unloading and filling operations at the facility shall not exceed 22.6 tons per year. This also includes VOC emissions from the new Paint Line (TK-310, EFUG1; RB-1, EFUG1; S-10, EFUG1) which are considered to be fugitive emissions. Compliance with this emission limit shall be conducted by determining actual VOC losses using the Emission Inventory Improvement Program (EIIP) Volume II: Chapter 8 Preferred and Alternative Methods for Estimating Air Emissions from Paint and Ink Manufacturing Facilities on a monthly basis.

Annual VOC emissions from the new paint filling line is limited by facility VOC limit of 22.6 ton/yr.

4.1.9. PM/PM₁₀ emissions from the High Speed Dispersion and Mixing Tanks (DT-1 thru DT-6; DT-10; DT-11; TD-32; TD-42; and TD-45) shall be vented through the Dust Collector (DC-2) having a minimum control efficiency of 95%. The Dust Collector (DC-2) shall be on-line, properly maintained and functioning before the High Speed Dispersion and Mixing Tanks are vented to the dust collector.

PM/PM10 - Maintenance records for Dust Collector (DC-2; EDC-2).

4.1.10. Controlled emissions from the Dust Collector (DC-2; EDC-2) shall not exceed the following limitations:

Pollutant	Maximum Controlled ⁽¹⁾ Emissions			
	(lb/hr)	(ton/yr)		
PM	0.96	1.0		
PM_{10}	0.77	0.8		
(1)Base	(1)Based on a 95% control efficiency and operating 2,080 hr/yr.			

Hourly PM/PM10 - Monthly visual emission check of Dust Collector (DC-2; EDC-2).

Annual PM/PM10 - Hours of Dust Collector (DC-2; EDC-2) operation not to exceed 2,080 hrs based on a rolling 12-month total

4.1.12. No person shall cause, suffer, allow or permit emission of smoke and/or particulate matter into the open air from any process source operation which is greater than twenty (20) percent opacity, except as noted in subsections 3.2, 3.3, 3.4, 3.5, 3.6, and 3.7.

[45CSR §7-3.1.]

20% opacity - Monthly visual emission check of Dust Collector (DC-2; EDC-2) exhaust stack/emission point EDC-2.

CHANGES TO PERMIT R13-1512J

A compare file is given in Attachment 1 to this evaluation and high-lights all the changes made to R13-1512J to become R13-1512K.

RECOMMENDATION TO DIRECTOR

The writer reviewed ROC's modification application (R13-1512K) and found the proposed changes in compliance with applicable regulations. Therefore, the writer recommends that permit R13-1512K be approved for the addition/installation of the new paint filling line (for the new RESTORE line of products and the line's two variant products: 4X and 10X) and the implementation of several administrative corrections/changes also proposed in the application.

John Legg Permit Writer

May 24, 2017

Attachment 1

Changes Made to R13-1512J to Become R13-1512K

Rust-Oleum Corporation (011-00045)

Lesage, Cabell County, WV